

List of claims:

- 1-16. (Canceled)
17. (Currently Amended) A method comprising:
activating a phase-locked loop (PLL), including a voltage-controlled oscillator (VCO), to lock onto a frequency, a tuning voltage of the VCO being at a VCO-lock voltage when the PLL is locked;
determining an indication of a difference between the tuning voltage approximately at an activation time of the PLL and the VCO-lock voltage;
deactivating the PLL; and
providing charge, in an amount depending upon the difference, to the VCO during at least a portion of a deactivation time when the PLL is deactivated to affect the tuning voltage of the VCO.
18. (Original) The method of claim 17 further comprising reactivating the PLL when the tuning voltage is approximately equal to the VCO-lock voltage.
19. (Original) The method of claim 17 wherein the VCO-lock voltage is a first VCO-lock voltage corresponding to the PLL being locked to a first frequency, the method further comprising reactivating the PLL when the tuning voltage is approximately equal to a second VCO-lock voltage corresponding to the VCO tuning voltage for the PLL to be locked to a second frequency that is different from the first frequency.
20. (Original) The method of claim 17 wherein the providing provides sufficient charge to compensate for charge leakage during deactivation of the PLL.
21. (Currently Amended) The method of claim 17 wherein the providing includes substantially continuously providing at least one amount of current from among a plurality of discrete amounts of current.

22. (Currently Amended) The method of claim 21 wherein the plurality of discrete amounts of current are related to each other by a binary progression.

23. (Original) The method of claim 21 further comprising selecting at least one of a plurality of current mirrors to provide the at least one amount of current.

24. (Original) The method of claim 17 wherein the providing includes supplying charge from a charge pump for at least an initial portion of the deactivation time.

25. (Original) The method of claim 24 wherein the portion is dependent upon the indication.

26. (Original) The method of claim 17 wherein determining the indication includes determining a first indication that is related to the tuning voltage approximately at an activation time of the PLL, and determining the VCO-lock voltage.

27. (Original) The method of claim 26 wherein determining the first indication is performed before a charge pump of the PLL is turned on when activating the PLL.

28. (Original) The method of claim 17 wherein determining the indication includes integrating indicia of activity of a charge pump of the PLL between activating and deactivating the PLL.

29. (Original) The method of claim 28 wherein the integrating includes integrating a number of times the charge pump goes up and down.

30. (Original) The method of claim 29 wherein the integrating includes integrating quantities and polarizations of charge provided by the charge pump.

31. (Original) The method of claim 28 wherein the integrating is performed digitally.

32. (Original) The method of claim 17 wherein determining the indication includes integrating an error signal produced by a phase detector of the PLL.

33. (Original) The method of claim 32 wherein the error signal is transmitted by the phase detector to a charge pump of the PLL.

34. (Original) The method of claim 32 further comprising determining polarity and magnitude of the integration and adjusting the charge provided to the VCO depending on the determined polarity and magnitude.

35. (Original) A phase-locked loop (PLL) comprising:
a voltage-controlled oscillator (VCO) having a VCO input, a tuning voltage at the VCO input being at a VCO-lock voltage when the PLL is locked to a frequency;
means for determining an indication of a difference between the tuning voltage approximately at an activation time of the PLL and the VCO-lock voltage; and
means for providing charge, in an amount depending upon the indication, to the VCO during at least a portion of a deactivation time when the PLL is deactivated to affect the tuning voltage of the VCO.

36. (Original) The PLL of claim 35 wherein the means for determining compares indicia of the VCO-lock voltage and the tuning voltage at a time near but before the activation time of the PLL.

37. (Original) The PLL of claim 36 wherein the indicia are the VCO-lock voltage and the tuning voltage.

38. (Original) The PLL of claim 35 wherein the means for determining determines amounts and polarities of charge provided to the VCO during at least a portion of the active time of the PLL.

39. (Original) The PLL of claim 38 wherein the at least a portion of the active time is substantially the entire active time.

40. (Original) The PLL of claim 38 wherein the at least a portion of the activate time is a time from the activation time until the PLL is locked.

41. (Original) The PLL of claim 35 wherein the means for determining integrates charge from the means for providing.

42. (Original) The PLL of claim 35 wherein the means for determining integrates an error signal from a phase detector of the PLL.

43. (Original) The PLL of claim 35 wherein the means for providing includes at least one current source.

44. (Original) The PLL of claim 43 wherein the at least one current source includes a plurality of current sources configured to provide current amounts related to each other in a binary progression.

45 - 61. (Canceled)

62. (New) The method of claim 22 wherein a smallest of the discrete amounts of current is less than an amount that would swing an output of the VCO from one extrtreme of a desired frequency tolerance of the PLL to another extreme of the desired frequency tolerance.

63. (New) The PLL of claim 44 wherein a smallest of the discrete amounts of current is less than an amount that would swing an output of the VCO from one extrtreme of a desired frequency tolerance of the PLL to another extreme of the desired frequency tolerance.